**Radiations hardness of nanocrystalline nickel under 450 keV protons**

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**Abstract**
This contribution reports on the effects of 450 keV proton irradiation within the 1015–
1017H+/cm2 fluence range on nano-crystalline Ni thin films. The surface and in-volume
induced damages were investigated by grazing incidence X-rays diffraction, atomic force
microscopy, Rutherford backscattering as well as four-point probe resistivity measurements.
Within such a type of H+ irradiation, a significant surface roughening and amorphization of
the external parts of the Ni crystallites for the lowest fluence (1015 H+/cm2 and a recrystallization for higher fluences (1016–1017 H+/cm2) was observed.

**Keywords**: Radiations hardness, Proton irradiation, Nanostructured Ni thin Films, Defects,

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